

## CLAIMS

1 1. A method for data transmission via several data channels in a network linking several units to one  
2 another, the units functioning as data sources, data sinks, or transceivers, the method comprising the  
3 steps of:

4 assigning a first data channel to a first predetermined one or more connection segments;

5 assigning said first channel to a second predetermined one or more connection segments not  
6 including said first predetermined one or more connection segments; and

7 simultaneously transmitting data between two units across said first predetermined one or  
8 more connection segments via said first data channel, and data between two or more other units  
9 across said second predetermined one or more connection segments via said first data channel.

1 2. The method of claim 1, wherein the network has a linear network topology.

1 3. The method of claim 1, wherein the network has a ring network topology.

1 4. The method of claim 3, wherein the network is a Media Oriented System Transport or Media  
2 Oriented Synchronous Transfer (MOST) network.

1 5. The method of claim 3, wherein data are transmitted in only a first direction over said first  
2 predetermined one or more connection segments, and wherein data are transmitted in only a second  
3 direction over said second predetermined one or more connection segments, wherein said first  
4 direction and said second direction are the same direction.

1 6. The method of claim 4, wherein data are transmitted in only a first direction over said first

2 predetermined one or more connection segments, and wherein data are transmitted in only a second  
3 direction over said second predetermined one or more connection segments, wherein said first  
4 direction and said second directions are the same direction.

1 7. The method of claim 5, wherein said first and second directions are clockwise around the ring  
2 network.

1 8. The method of claim 5, wherein said first and second directions are counterclockwise around  
2 the ring network.

1 9. The method of claim 6, wherein said first and second directions are clockwise around the ring  
2 network.

1 10. The method of claim 6, wherein said first and second directions are counterclockwise around  
2 the ring network.